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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,808	09/15/2003	Yutaka Ochi	P69141US0	7384

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EXAMINER	
XIAO, KE	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,808	Applicant(s) OCHI ET AL.	
	Examiner Ke Xiao	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, **Claim 1** recites the limitations "at least one second subfield having a plurality of pulses of the digital drive signal and being longer than the given period" and "a total of the display off period and the display on period of the second subfield being shorter than the given period" and since a subfield is made up of only display on and display off periods the above two limitations can only be met by a second subfield with a total period that is both longer *and* shorter than the given period. Said limitations are contradictory. For the purposes of prior art rejection and claim interpretation, the examiner will view the claim as defined by the first limitation where the second period is *longer* than the given period.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Tanaka (US 6,052,112).

Regarding **Claim 1**, the AAPA teaches a method of driving a vertically aligned liquid crystal display (AAPA, Figs. 8 and 9) comprising the steps of:

dividing one field of a digital drive signal into a plurality of subfields for the digital drive signal to be supplied to the liquid crystal display per subfield, the subfields including at least one first subfield having one pulse of the digital drive signal and being shorter than a given period for which an output light of a liquid crystal varies from a white level that is a saturated level (AAPA, Fig. 9 1F into subfields B0-B5, B0 is shorter than the given period), to a black level and at least one second subfield having one pulse of the digital drive signal and being shorter than the given period (AAPA, Fig. 9 subfield B2), the first subfield having one display-off period for which the liquid crystal is not driven and one display on period for which the liquid crystal is driven (AAPA, Fig. 9 subfield B0) and the second subfield having one display-off period for which the liquid crystal is not driven and one display on period for which the liquid crystal is driven

(AAPA, Fig. 9 subfield B2), a total of the display off period and the display on period of the second subfield being longer than the given period (AAPA, Fig. 9 subfield B2); and supplying a voltage equal to or higher than a saturated drive voltage as the digital drive signal to the liquid crystal for each display on period per subfield to modulate light incident in the liquid crystal (AAPA, Figs. 8 and 9, Vp).

The AAPA fails to teach that the second subfield can be divided into a plurality of pairs of display on periods and display off periods as claimed. Tanaka teaches that a single subfield can be divided into a plurality of pairs of equal length display on periods and equal length display off periods, wherein the total display on periods and the total display off periods are longer than a given period (Tanaka, Figs. 3 and 10 where figure 10 shows the prior art and figure 3 shows the modification where the second third and fourth subfields are divided into pairs of equal length display on periods and equal length display off periods). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the divided subfields as taught by Tanaka in the display system of the AAPA in order to improve moving image quality (Tanaka, Col. 5 lines 50-65, Col. 16 lines 55-65).

Response to Arguments

Applicant's arguments with respect to Claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 7th, 2008 - kx -


SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER